

We claim:

- 1) A binder composition consisting essentially of:
 - a) from 80 to 98 weight % of a copolymer binder comprising as polymerized units:
 - i) 98.5 to 70 weight % of at least one first monomer selected from the group consisting of C₂-C₈ esters of methacrylic acid and acrylic acid;
 - ii) 1 to 30 weight % of at least one second monomer selected from the group consisting of styrene, acrylonitrile, and methyl methacrylate;
 - iii) 0.5 to 5 weight % of at least one third monomer selected from the group consisting of acrylic acid, methacrylic acid, acrylamide, methacrylamide, and 2-acrylamido-2-methylpropanesulfonic acid; wherein said copolymer binder is an emulsion polymer and has a glass transition temperature in the range of -35°C to 0°C; and
 - b) from 20 to 2 weight % of a hydrophobically modified alkali soluble emulsion.
- 2) The composition of claim 1 further including sufficient surfactant to ensure stability of said binder composition.
- 3) The composition of claim 1 wherein said at least one first monomer is selected from the group consisting of butyl acrylate, ethyl acrylate, and 2-ethyl hexyl acrylate.
- 4) The composition of claim 1 wherein the average particle diameter of said copolymer binder is in the range of 0.10 µm to 0.50 µm.
- 5) A coating process comprising:
 - a) preparing a paper coating composition by admixing ingredients comprising 100 parts by dry weight pigment slurry; from 1.6 to 9.8 parts by dry weight copolymer binder comprising as polymerized units 98.5 to 70% of at least one first monomer selected from the group consisting of C₂-C₈ esters of methacrylic acid and acrylic acid, 1 to 30% of at least one second monomer selected from the group consisting of styrene, acrylonitrile, and methyl methacrylate, 0.5 to 5% of at least one third monomer selected from the group consisting of acrylic acid, methacrylic acid, acrylamide, methacrylamide, and 2-acrylamido-2-

methylpropanesulfonic acid; wherein said copolymer binder is an emulsion polymer and has a glass transition temperature in the range of -35°C to 0°C; and from 0.04 to 2.0 parts by dry weight hydrophobically modified alkali soluble emulsion;

wherein said paper coating composition has a pH in the range of 6 to 10; and wherein said paper coating composition has a solids level in the range of 30 to 75 weight %;

- b) applying said paper coating composition onto a paper substrate; and
- c) drying said paper substrate coated with said paper coating composition.

6) The coating process of claim 5 wherein said paper coating composition has a solids level in the range of 50 to 70 weight %.

7) The coating process of claim 5 wherein the coating speed is greater than 600 meters per minute.

8) The coating process of claim 5 wherein the dry weight of said paper coating composition on said paper substrate is in the range of 3 to 12 grams per square meter.

9) A paper substrate coated with a paper coating composition comprising:

- a) 100 parts by weight pigment;
- b) from 1.6 to 9.8 parts by weight copolymer binder comprising as polymerized units:
 - i) 98.5 to 70% first monomer selected from the group consisting of C₂-C₈ esters of (meth)acrylic acid;
 - ii) 1 to 30% second monomer selected from the group consisting of styrene, acrylonitrile, and methyl methacrylate;
 - iii) 0.1 to 5% of at least one third monomer selected from the group consisting of acrylic acid, methacrylic acid, acrylamide, methacrylamide, and 2-acrylamido-2-methylpropanesulfonic acid; wherein said copolymer binder is an emulsion polymer and has a glass transition temperature in the range of -35°C to 0°C; and
- c) from 0.04 to 2.0 parts by weight hydrophobically modified alkali swellable emulsion polymer.

- 10) The paper substrate of claim 10 wherein the coat weight of said paper coating composition is in the range of 3 to 12 grams per square meter.

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